

created: 12/27/1991 type: REPORT permanent  
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INUM: 04456-2-1  
AUTH: HEFT R.E.  
CLSS: SRD  
CORP: LAWRENCE RADIATION LABORATORY (LIVERMORE-CALIFORNIA)  
DATE: 6606  
DESC: Nuclear Weapon Environment Fallout isotope concentrations  
DESC: EXPERIMENTAL  
DESC: Nuclear Weapon Environment Fallout gamma intensities spectra  
DESC: Nuclear Weapon Environment Fallout Particles size distribution  
REPN: USNRDL R AND L 176  
SHOT: PALANQUIN ; SEDAN  
TSHO: UG-VENTED ; UG-CONTAINED  
SUJO: 2-222-300 ; 2-223-100 ; 2-223-200  
SYMJ: FALLOUT PHENOMENA SYMPOSIUM (U), APRIL 12-14, 1966, PROCEEDINGS,  
PART 2 (SRD)  
TITL: PARTICLE ANALYSIS OF PALANQUIN AND SEDAN EVENTS (U), 25 P (SRD)

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04456-2-1

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created: 12/27/1991 type: REPORT permanent  
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INUM: 04456-2-7  
AUTH: FERGUSON J.M.  
CLSS: SRD  
CORP: NAVY/NAVAL RADIOLOGICAL DEFENSE LABORATORY (SAN  
FRANCISCO-CALIFORNIA)  
DATE: 6606  
DESC: SUMMARY  
DESC: Nuclear Weapon Environment Fallout gamma intensities spectra  
REPN: USNRDL R AND L 176  
TSHO: LOW-ALT  
SUJO: 2-223-200  
SYMJ: FALLOUT PHENOMENA SYMPOSIUM (U), APRIL 12-14, 1966, PROCEEDINGS,  
PART 2 (SRD)

TITL: NEUTRON INDUCED ACTIVITY (U), 6 P (SRD)

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created: 12/27/1991 type: REPORT permanent  
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INUM: 04459  
ADNO: 363933L  
AUTH: BUNNEY L.R.

CLSS: SRD-1  
CORP: NAVY/NAVAL RADIOLOGICAL DEFENSE LABORATORY (SAN FRANCISCO-CALIFORNIA)  
DATE: 6506  
DESC: EXPERIMENTAL  
DESC: Nuclear Weapon Environment Fallout isotope concentrations  
DESC: Nuclear weapon test yield  
REPN: USNRDL TR 867  
SHOT: SWORDFISH  
TSHO: UW  
SUJO: 2-223-100 ; 4-835-000  
TEMP: 49979  
TITL: RADIOCHEMICAL DETERMINATION OF THE YIELD OF THE SWORD FISH DEVICE (U), 8 P (SRD)

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created: 12/27/1991 type: REPORT permanent

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INUM: 04469  
ADNO: 369254L  
AUTH: SPILLMAN G.R., DEBORDE G.E., LAMBERTO P.J., GARNER J.W., HAVENS  
CLSS: SRD CNWDI  
CORP: AIR FORCE/WEAPONS LABORATORY (KIRTLAND AIR FORCE BASE-NEW MEXICO)  
DATE: 6601  
DESC: THEORY TABULAR  
DESC: Nuclear Weapon Environment X-ray Output energy spectrum  
DESC: Nuclear weapon test yield  
DESC: Radiation Transport x-ray  
DESC: Nuclear Weapon Environment X-ray Output rate  
REPN: AFWL TR 65 184  
SOCE: DEV-23  
SUJO: 1-620-000 ; 1-640-000 ; 4-835-000 ; 9-640-000  
TEMP: 49989  
TITL: RADIATION TRANSPORT CALCULATION OF NUCLEAR WEAPON OUTPUT (HB2) (U), 54 P (SRD)

TREE: 930

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created: 12/27/1991 type: REPORT permanent

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INUM: 04470  
ADNO: 366272L  
AUTH: ENGELMORE R.S.  
CLSS: U

QUARTERLY PROGRESS REPORT (U), 120 P (U)

TREE: 305

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04638

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cat1: cat2: home: STACKS current: STACKS

created: 12/27/1991 type: REPORT permanent

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INUM: 04643

ADNO: 375372L

AUTH: LOEWE W.E. ; MANDLER J.W. ; STINCHCOMB T.G. ; ZAGOTTA W.E.

CLSS: SRD-1

CONN: DA 18 035 AMC 114 (A)

CORP: ILLINOIS INSTITUTE OF TECHNOLOGY/RESEARCH INSTITUTE  
(CHICAGO-ILLINOIS) ; ARMY/NUCLEAR DEFENSE LABORATORY (EDGEWOOD  
ARSENAL-MARYLAND)

DATE: 6606

DESC: Nuclear weapon test yield

DESC: Nuclear Weapon Environment Fallout gamma intensities spectra

DESC: Nuclear Weapon Environment radiation decay gamma decay

DESC: TABULAR

DESC: Nuclear Test Simulation Field Programs experiment design gamma  
experiments

DESC: test instruments nuclear radiation gamma

DESC: Nuclear Weapon Environment Initial Gamma dose rate pulse width

REPN: NDL TR 74 ; NDL 66 SRD 93

SHOT: ITEM ; CHARLIE(B-J) ; EASY(B-J) ; SUGAR ; UNCLE ; DOG(T-S) ; MIKE ;

BRAVO ; UNION ; ZUNI ; FLATHEAD ; NAVAJO ; FRANKLIN ; LASSEN ;

WILSON ; HOOD ; JOHN ; OWENS ; HAMILTON ; JOHNNIE BOY ; SMALLBOY ;

STARFISH ; CHECKMATE ; KINGFISH

TSHO: LOW-ALT ; SURFACE ; WATER-SURFACE ; HI-ALT

SUJO: 1-740-000 ; 2-223-200 ; 2-223-420 ; 4-341-000 ; 4-820-400 ;

4-835-000

TEMP: 51280

TITL: GAMMA DOSE RATE COMPILATION (U), 251 P (SRD)

TREE: 910

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04643

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cat1: cat2: home: STACKS current: STACKS

created: 12/27/1991 type: REPORT permanent

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INUM: 04659

ADNO: 488557

AUTH: BINDER D. ; COMPTON P.A. ; SMITH E.C.

CLSS: U

CONN: AF 29 (601) 6721

CORP: HUGHES AIRCRAFT COMPANY (FULLERTON-CALIFORNIA) ; AIR FORCE/WEAPONS

INUM: 04821  
ADNO: 376882L  
AUTH: LOEWE W.E. ; MANDLER J.W. ; STINCHCOMB T.G. ; ZAGOTTA W.E.  
CLSS: SRD-1  
CONN: DA 18 035 AMC 114 (A)  
CORP: ARMY/NUCLEAR DEFENSE LABORATORY (EDGEWOOD ARSENAL-MARYLAND) ;  
ILLINOIS INSTITUTE OF TECHNOLOGY/RESEARCH INSTITUTE  
(CHICAGO-ILLINOIS)  
DATE: 6607  
DESC: Nuclear Weapon Environment Initial Gamma source strength total  
intensity  
DESC: Nuclear Weapon Phenomenology cloud development rise  
DESC: Nuclear Weapon Environment Fallout gamma intensities spectra  
DESC: THEORY EXPERIMENTAL  
DESC: Nuclear Weapon Environment Initial Gamma dose rate pulse width  
DESC: test instruments nuclear radiation dosimeters radiacs  
REPN: NDL TR 75  
SHOT: ITEM ; CHARLIE(B-J) ; EASY(B-J) ; SUGAR ; DOG(T-S) ; MIKE ; KING ;  
UNION ; BRAVO ; ZUNI ; FLATHEAD ; NAVAJO ; FRANKLIN ; LASSEN ;  
WILSON ; HOOD ; OWENS ; HAMILTON ; SMALLBOY  
TSHO: LOW-ALT ; SURFACE ; WATER-SURFACE  
SUJO: 1-710-000 ; 1-740-000 ; 2-223-200 ; 2-224-100 ; 4-346-000  
TEMP: 51543  
TITL: STUDY OF INITIAL GAMMA DOSE AND DOSE RATE MEASUREMENTS (U), 284 P  
(SRD)  
TREE: 910  
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04821  
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cat1: cat2: home: STACKS current: STACKS  
created: 12/27/1991 type: REPORT permanent  
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INUM: 04822  
ADNO: 640595  
AUTH: BRACCIARENTI J. ; HEILFERTY R. ; DERKSEN W.  
CLSS: U  
CORP: NAVY/NAVAL APPLIED SCIENCE LABORATORY (BROOKLYN-NEW YORK)  
DATE: 6607  
DESC: EXPERIMENTAL  
DESC: Nuclear Weapon Effects materials fibers textiles  
DESC: Nuclear Weapon Effects materials wood paper cellulose films  
DESC: Simulation Facilities Techniques thermal optical  
REPN: 14 ; AD 640595  
SUJO: 3-242-000 ; 3-246-000 ; 4-280-000  
TITL: RADIANT EXPOSURES FOR IGNITION OF TINDER BY THERMAL RADIATION FROM  
NUCLEAR WEAPONS, FINAL REPORT (U), 95 P (U)  
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04822  
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copy: 1 id: 40287-1001 library: DOCUMENT price: \$.00

INUM: 05441  
ADNO: 805092  
AUTH: RAPP R.R.  
CLSS: U  
CONN: F 44620 67 C 0045  
CORP: RAND CORPORATION (SANTA MONICA-CALIFORNIA)  
DATE: 6612  
DESC: SUMMARY  
DESC: Nuclear Weapon Environment fallout down fraction  
DESC: Nuclear Weapon Environment Fallout gamma intensities spectra  
REPN: RM 5164 PR  
SUJO: 2-223-200 ; 2-225-200  
TITL: ERROR IN THE PREDICTION OF FALLOUT RADIATION (U), 10 P (OUO)

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05441

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cat1: cat2: home: STACKS current: STACKS  
created: 12/27/1991 type: REPORT permanent

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INUM: 05468-191  
AUTH: GUTHALS P.R.  
CLSS: SRD  
CORP: LOS ALAMOS SCIENTIFIC LABORATORY (LOS ALAMOS-NEW MEXICO)  
DATE: 6601  
DESC: SUMMARY  
DESC: Nuclear Weapon Environment Fallout gamma intensities spectra  
DESC: Nuclear RDT&E Research Program Descriptions fallout nuclear  
radiation transport  
DESC: Nuclear Weapon Phenomenology cloud development rise  
TSHO: LOW-ALT ; SURFACE ; WATER-SURFACE  
SUJO: 2-223-200 ; 2-224-100 ; 4-140-000  
SYMJ: JOURNAL OF MISSILE DEFENSE RESEARCH (U), VOLUME 4, NUMBER 2 (SRD), P  
191, FALL1966  
TITL: DESCRIPTION OF CLOUD RISE AND AIR SAMPLING TECHNIQUES (U), 4 P (SRD)

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cat1: cat2: home: STACKS current: STACKS  
created: 12/27/1991 type: REPORT permanent

.endblock

INUM: 05468-202  
AUTH: GUTMACHER R.G. ; HIGGINS G.H.  
CLSS: SRD  
CORP: LAWRENCE RADIATION LABORATORY (LIVERMORE-CALIFORNIA)  
DATE: 6601  
DESC: EXPERIMENTAL  
DESC: Nuclear Weapon Environment Fallout Formation mechanicms  
DESC: Nuclear Weapon Environment Ground Shock craters excavations

DESC: Nuclear Weapon Environment fallout fractionation  
DESC: Nuclear Weapon Phenomenology cloud Motion  
DESC: Nuclear Weapon Environment dust moisture injection atmosphere  
SHOT: APACHE ; ZUNI ; LACROSSE ; KOON ; MOHAWK ; TEWA ; BRAVO ; SEDAN ;  
PALANQUIN  
TSHO: WATER-SURFACE ; UG-VENTED  
SUJO: 2-221-000 ; 2-222-400 ; 2-223-500 ; 2-224-000 ; 2-625-000  
SYMJ: JOURNAL OF MISSILE DEFENSE RESEARCH (U), VOLUME 4, NUMBER 2 (SRD), P  
202, FALL1966  
TITL: TOTAL MASS AND CONCENTRATION OF PARTICLES IN DUST CLOUDS (U), 11 P  
(SRD)

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copy: 1 id: 40725-1001 library: DOCUMENT price: \$.00  
cat1: cat2: home: STACKS current: STACKS  
created: 12/27/1991 type: REPORT permanent

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INUM: 05481  
AUTH: LOWRY J.W. ; SCHERMERHORN D.A.  
CLSS: SRD  
CCDE: CONATX  
CONN: AF 04 (695) 669  
CORP: AEROSPACE CORPORATION (SAN BERNARDINO-CALIFORNIA)  
DATE: 6606  
DESC: CODE THEORY  
DESC: Radiation Transport gamma  
DESC: Radiation Transport x-ray  
DESC: Cross Sections x-ray  
DESC: Cross Sections gamma  
REPN: TOR 669 (S 6815 71) 12  
SUJO: 9-620-000 ; 9-640-000 ; 9-830-000 ; 9-840-000  
TEMP: 53900  
TITL: PROGRAM FOR THE CALCULATION OF MASS ATTENUATION FUNCTIONS FOR X-RAY  
AND GAMMA-RAY SOURCES (U), 56 P (SRD)

TREE: 411 ; 413

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05481

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cat1: cat2: home: STACKS current: STACKS  
created: 12/27/1991 type: REPORT permanent

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INUM: 05482  
ADNO: 376712  
AUTH: KELLY C.W. III ; PARKER D.C. ; NOSWORTHY C.T. ; CANTRELL J.L.  
CLSS: C  
CORP: NAVY/NAVAL RADIOLOGICAL DEFENSE LABORATORY (SAN  
FRANCISCO-CALIFORNIA)  
DATE: 6604

DESC: EXPERIMENTAL  
DESC: Nuclear Weapon Effects on animals ionizing radiation prompt L1  
REPN: AFRI SR 66 1  
SUJO: 3-312-100  
TITL: HEMATOLOGY OF THE MONKEY (MACACA MULATTA) (U), 18 P., (U)

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copy: 1 id: 53386-1001 library: DOCUMENT price: \$.00  
cat1: cat2: home: STACKS current: STACKS  
created: 12/27/1991 type: REPORT permanent

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INUM: 20406  
ADNO: 631661  
AUTH: SEIGNEUR L.J. ; BRENNAN J.T.  
CLSS: U  
CORP: ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE (BETHESDA, MD.)  
DATE: 6602  
DESC: Nuclear Weapon Effects on animals ionizing radiation prompt L1  
DESC: EXPERIMENTAL  
EFFT: NEUTRON ; GAMMA  
REPN: AFRI SR 66 2  
SUJO: 3-312-100  
TITL: INCAPACITATION IN THE MONKEY (MACACA MULATTA) FOLLOWING EXPOSURE TO  
A PULSE OF REACTOR RADIATIONS (U), 60 P., (U)

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copy: 1 id: 53387-1001 library: DOCUMENT price: \$.00  
cat1: cat2: home: STACKS current: STACKS  
created: 12/27/1991 type: REPORT permanent

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INUM: 20412  
ADNO: 635086  
AUTH: BAUM S.J.  
CLSS: U  
CORP: ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE (BETHESDA, MD.)  
DATE: 6605  
DESC: EXPERIMENTAL  
DESC: Nuclear Weapon Effects on animals ionizing radiation prompt L1  
EFFT: X-RAY  
REPN: AFRI SR 66 4  
SUJO: 3-312-100  
TITL: ERYTHROCYTE STEM CELL KINETICS IN THE POSTRADIATION RAT (U), 25 P.,  
(U)

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20412

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copy: 1 id: 53393-1001 library: DOCUMENT price: \$.00

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created: 12/27/1991 type: REPORT permanent  
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INUM: 20449  
AUTH: BAUM S.J.  
CLSS: U  
CORP: ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE (BETHESDA, MD.)  
DATE: 6610  
DESC: Nuclear Weapon Effects on animals ionizing radiation chronic  
external L1  
EFFT: X-RAY  
REPN: AFRRRI SR 66 6  
SUJO: 3-312-210  
TITL: MEASURE OF NONREPARABLE INJURY TO HEMATOPOIETIC STEM CELLS IN RATS  
EXPOSED REPEATEDLY TO X-RAYS (U), 15 P., (U)

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created: 12/27/1991 type: REPORT permanent  
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INUM: 20450  
AUTH: WEBSTER J.B.  
CLSS: U  
CORP: ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE (BETHESDA, MD.)  
DATE: 6610  
DESC: EXPERIMENTAL  
DESC: Nuclear Weapon Effects on animals ionizing radiation prompt L1  
EFFT: X-RAY  
REPN: AFRRRI SR 66 5  
SUJO: 3-312-100  
TITL: EFFECT OF ORAL NEOMYCIN THERAPY FOLLOWING WHOLE-BODY X-IRRADIATION  
OF RATS (U), 17 P., (U)

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created: 12/27/1991 type: REPORT permanent  
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INUM: 20562  
ABS: This manual provides guidance for training, equipping, and utilizing  
emergency teams for nuclear accident radiological contamination  
control. Specific guidance is provided for CBR alpha and  
radiological control (RADCON) teams, but the general principles  
presented apply to all special teams and personnel concerned with  
nuclear accident control. This manual covers procedures and  
techniques for reducing radiation hazards resulting from nuclear

accidents and the control procedures applicable in relatively small areas that contain hazardous levels of radiological contamination. It describes procedures and practices for detecting, identifying, measuring, controlling, and decontaminating radiological contamination and specifies the levels of radiological contamination that are significant both during recovery operations and after decontamination at a nuclear accident site.

ABS: FM 3-12 and TM 5-225 outline the procedures that are applicable to large areas of radiological contamination. This manual is designed primarily for peacetime operations. It is also applicable in wartime except that in nuclear warfare, alpha contamination is not considered militarily significant.

CLSS: U  
CORP: ARMY HEADQUARTERS  
DATE: 6606  
DESC: SUMMARY  
DESC: Nuclear Warfare Postattack Recovery decontamination L1  
REPN: FM 003 15  
SUJO: 3-448-900  
TITL: NUCLEAR ACCIDENT CONTAMINATION CONTROL (U), 67 P., (U)

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created: 12/27/1991 type: REPORT permanent

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INUM: 20577  
ADNO: 631189  
AUTH: MOBLEY T.S. ; GODDEN W.R. ; DEBOER J.  
CLSS: U  
CORP: AIR FORCE WEAPONS LAB. (KIRTLAND AFB, N.M.)  
DATE: 6603  
DESC: Nuclear Weapon Effects on animals ionizing radiation prompt L1  
DESC: EXPERIMENTAL  
EFFT: X-RAY ; GAMMA  
REPN: AFWL TR 65 200  
SUJO: 3-312-100  
TITL: MEDIAN LETHAL DOSE (LD-50/60) STUDIES IN SHEEP FOLLOWING 250-KVP X-IRRADIATION (U), 32 P., (U)

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created: 12/27/1991 type: REPORT permanent

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INUM: 20578  
ADNO: 465615  
AUTH: ELLIOTT D.D.

CLSS: U  
CONN: AF 04 (695) 469  
CORP: AEROSPACE CORP. (EL SEGUNDO, CA.)  
DATE: 6505  
DESC: Nuclear Weapon Environment Induced Synchrotron Noise L1  
DESC: Nuclear Weapon Phenomenology High-Altitude injection trapping L1  
DESC: THEORY  
REPN: TDR 469 (5260 20) 4 ; SSD TR 65 55  
SUJO: 2-217-000 ; 2-420-000  
TITL: INFLUENCE OF SYNCHROTRON RADIATION ON LONG-TERM DECAY OF TRAPPED  
ENERGETIC ELECTRONS (U), 17 P., (U)

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created: 12/27/1991 type: REPORT permanent

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INUM: 20591  
AUTH: LESSLER R.M. ; GUY F.W.  
CLSS: U  
CONN: W 7405 ENG 48  
CORP: LAWRENCE RADIATION LAB. (LIVERMORE, CA.)  
DATE: 6504  
DESC: Cross Sections neutron L1 NTS SOIL GRANITE SEAWATER  
DESC: Nuclear Weapon Environment Fallout gamma intensities spectra L1  
DESC: TABULAR  
REPN: UCRL 12407  
SUJO: 2-223-200 ; 9-820-000  
TITL: NEUTRON-INDUCED ACTIVITY IN EARTH AND SEAWATER FROM BURIED AND  
SURFACE NEUTRON SOURCES (U), 63 P., (U)

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cat1: cat2: home: STACKS current: STACKS  
created: 12/27/1991 type: REPORT permanent

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INUM: 20602  
AUTH: TURNER F.B. ; ROWLAND R.H. ; WOOD R.A.  
CLSS: U  
CONN: AT (04 1) GEN 12  
CORP: UNIVERSITY OF CALIFORNIA (LOS ANGELES, CA.)  
DATE: 6604  
DESC: Nuclear Weapon Effects on animals ionizing radiation chronic  
internal L1  
DESC: EXPERIMENTAL  
SHOT: SEDAN  
TSHO: SURFACE  
SUJO: 3-312-220

TITL: NUCLEAR ENGINEERING AND WILDLIFE--RADIOACTIVITY IN JACKRABBITS AFTER  
THE SEDAN TEST (U), 11 P., (U)

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cat1: cat2: home: STACKS current: STACKS

created: 12/27/1991 type: REPORT permanent

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INUM: 20654

AUTH: MEDVEDEV Y.A. ; STEPANOV B.M. ; FEDOROVICH G.V.

CLSS: U

DATE: 6607

DESC: THEORY

DESC: Nuclear Weapon Environment Induced Electromagnetic Pulse EMP L1

EMPF: 223

TSHO: SURFACE

SUJO: 2-510-000

SYMJ: SOVIET PHYSICS -TECHNICAL PHYSICS; VOL. 12, NO. 11, P. 1534, MAY,  
1968

TITL: ELECTROMAGNETIC FIELD OF A POINT SOURCE OF LONG-RANGE RADIATION IN  
AIR ABOVE A CONDUCTING SHIELD (U), 3 P., (U)

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copy: 1 id: 53620-1001 library: DOCUMENT price: \$.00

cat1: cat2: home: STACKS current: STACKS

created: 12/27/1991 type: REPORT permanent

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INUM: 20665

AUTH: FRENCH R.L.

CLSS: U

CONN: DA 49 146 XZ 254

CORP: ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE (BETHESDA, MD.)

DATE: 6511

DESC: EXPERIMENTAL

DESC: Simulation Facilities Techniques nuclear radiation fallout  
simulation L1

REPN: AFRRI CR65 2 ; RRA T45

SUJO: 4-242-000

TITL: COMPARATIVE STUDY OF RADIOACTIVE SOURCE ARRANGEMENTS FOR SIMULATING  
FALLOUT GAMMA RADIATION FIELDS (U), 111 P., (U)

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copy: 1 id: 53630-1001 library: DOCUMENT price: \$.00

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created: 12/27/1991 type: REPORT permanent

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INUM: POR 2034  
AUTH: PANNELL J.H. ; BALSER M. ; HARRIS P.J. ; WARNER J.L. ; WILBER L.C.  
CLSS: SRD  
CORP: LINCOLN LABORATORY (LEXINGTON-MA)  
DATE: 6503  
DESC: PALMYRA I ; EXPERIMENTAL  
DESC: Nuclear Weapon Environment Induced Synchrotron Noise L1 SFRD  
DESC: Nuclear Test Simulation Field Programs experiment design atmospheric  
ionization RF propagation noise L5  
REPN: POR 2034 ; WT 2034  
PROJ: 7.2A  
SHOT: STARFISH ; KINGFISH  
TSHO: HI-ALT  
SUJO: 2-420-000 ; 4-823-000  
TEMP: B9048 ; A9179 ; 43786  
TITL: SYNCHROTRON RADIATION, OPERATION DOMINIC, FISH BOWL SERIES, PROJECT  
OFFICERS REPORT, PROJECT 7.2A (U), 89 P (SFRD)

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POR 2034

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created: 12/27/1991 type: REPORT permanent

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INUM: POR 2501

ABS: The blast and throwout areas immediately surrounding the detonation points of the four operation Roller Coaster events were investigated extensively for Pu239 deposition and distribution. Device placement and explosive yield differed for each but the last two events from a single device on a steel plate in the open to nineteen devices with two and eight feet of earth overburden. The amount of Pu239 available for dissemination was essentially constant for all events. In the various mixtures of contaminant and metal, soil and concrete debris which resulted from such detonations, quantitative measurements by alpha detection were inadequate due to the limited range of the alpha particle. Unless a high degree of homogeneity was present in the debris, normal spot sampling techniques were likewise inadequate even with absolute determinations by radio-chemistry.

ABS: For these reasons the most reliable data were derived from large scale assays based on the electromagnetic radiations found in weapons grade Pu239. Special instrumentation was fabricated with optimum sensitivity for these radiations. This instrumentation, with similar circuitry and detectors, was used to assay metal debris and to monitor large land areas. Some correlative factors have been

obtained by radiochemistry for the conversion of instrument response to absolute Pu239 concentration. The scavenging of Pu239 by metal surfaces following detonation became the subject of a special study as a result of early field date evaluations. These intensive investigations were known as the Roller Coaster follow-on project. In this project, exclusive use was made of gamma detection techniques including radioautography with correlative radiochemical analyses.

ABS: The assays of the debris indicated no real advantage from the scavenging action of eight feet of earth overburden compared with only two feet of earth overburden. A major factor insignificantly improving the situation was the use of metal throughout such structures as a substitute or facing for concrete. Optimization of this approach, e.g., selection of metal and its configuration, should be the subject of special research studies. Under the most severe conditions of operation Roller Coaster, the residual contaminated area of immediate concern, after cloud passage for monitoring contamination control, restricted access, etc., was less than 2,500 feet from GZ in the downwind direction and about 100 feet from GZ in the upwind direction.

ABS: While accurate quantitative determinations are lacking, the conclusion appears valid that a surprisingly low percentage (less than 20 percent) of the total radio-active material exists in the debris and within 2,500 feet of GZ.

ADNO: 477688  
AUTH: JOHNSON W.S. SR.  
CLSS: 0  
CORP: EBERLINE INSTRUMENT CORPORATION (SANTA FE-NEW MEXICO)  
DATE: 6601  
DESC: EXPERIMENTAL  
DESC: Nuclear weapon safety radiological  
DESC: Nuclear Weapon Environment fallout intensity contours patterns  
REPN: POR 2501 ; WT 2501  
SHOT: CLEAN SLATE 2 ; CLEAN SLATE 3 ; CLEAN SLATE 1 ; DOUBLE TRACKS  
TSHO: SURFACE  
SUJO: 2-225-100 ; 4-838-100  
TITL: SOIL DEPOSITION, OPERATION ROLLER COASTER, PROJECT 2.1, PROJECT OFFICERS REPORT (U), 250 P (O)  
TNFF: 8859

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POR 2501

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created: 12/27/1991 type: REPORT permanent

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INUM: POR 2502

ABS: The nuclear defense laboratory (NDL) conducted large-scale air-sampling operations in support of the experimental objectives of operation Roller Coaster, a joint US/UK non-nuclear research program devoted to studying and better defining the environmental hazards associated with the scattering of plutonium. Operation Roller

Coaster, carried out in the Western sector of the Las Vegas bombing and gunnery range during the spring of 1963, consisted of four full-scale tests designed to investigate the biological hazards of plutonium scattered by non-nuclear explosions of weapons as stored and to evaluate the effectiveness of earth-covered structures in reducing the radiological hazards.

ABS: Specific objectives of the air-sampling project were to provide services and related research required for the collection of air samples to be used in determining the size, activity, and physical nature of plutonium-bearing particles and their spatial distribution in the cloud. Approximately 1,400 air-sampling devices, positioned on both ground arrays and balloon-supported vertical arrays, were used in collecting air samples of the cloud during each of the four Roller Coaster events. This report describes the air-sampling instrumentation, the methods employed in its installation, testing and calibration, summaries of test operations, and tabulations of data taken.

ADNO: 472213

AUTH: MALONEY J.C. ; HENRY R.L. ; FIELDS R.E. ; EGERLAND W.O. ; HOPPER W.L.

CLSS: O

CORP: ARMY/NUCLEAR DEFENSE LABORATORY (EDGEWOOD ARSENAL-MARYLAND) ; GD/FORT WORTH DIVISION (FORT WORTH-TEXAS)

DATE: 6510

DESC: Nuclear weapon safety

DESC: Nuclear weapon safety radiological

DESC: test instruments nuclear radiation fallout debris sampling collectors

DESC: TABULAR EXPERIMENTAL

REPN: POR 2502 ; WT 2502

TSHO: SURFACE

SUJO: 4-345-000 ; 4-838-000 ; 4-838-100

TITL: AIR SAMPLING MEASUREMENTS, OPERATION ROLLER COASTER, PROJECT OFFICERS REPORT, PROJECT 2.2 (U), 208 P (O)

TNFF: 8859

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POR 2502

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created: 12/27/1991 type: REPORT permanent

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INUM: POR 2503

ABS: Integral and time differentiated incremental fallout collectors were exposed after each of the four Roller Coaster events. Each collector exposed a sticky film, two microscope slides, and a planchet. The planchets were alpha radioassayed in the project 5.1a field laboratory and served as an index for those stations which sampled significant fallout. The sticky films and microscope slides selected for subsequent radiochemical analysis and special particulate studies, respectively, were chosen on the basis of the planchet radioassay. Deposition contours are presented derived from the

planchet activities. Soil cores were taken before and after each event to represent high-, intermediate-, and low-level deposition areas. Only the 0-to 1/2-inch fraction of the core was reserved for subsequent analyses.

ADNO: 468481  
AUTH: KREY P.W. ; FRIED R.E. ; SCHULTZ R.J.  
CLSS: O  
CORP: ISOTOPES INCORPORATED (WESTWOOD-NEW JERSEY)  
DATE: 6508  
DESC: test instruments nuclear radiation fallout debris sampling  
collectors  
DESC: EXPERIMENTAL TABULAR  
DESC: Nuclear weapon safety radiological  
REPN: POR 2503 ; WT 2503  
SHOT: DOUBLE TRACKS ; CLEAN SLATE 1 ; CLEAN SLATE 2 ; CLEAN SLATE 3  
TSHO: SURFACE  
SUJO: 4-345-000 ; 4-838-100  
TITL: FALLOUT COLLECTION, OPERATION ROLLER COASTER, PROJECT OFFICERS  
REPORT, PROJECT2.3 (U), 106 P (O)

TNFF: 8859

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POR 2503

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copy: 1 id: 89549-1001 library: DOCUMENT price: \$.00

cat1: cat2: home: STACKS current: STACKS

created: 12/27/1991 type: REPORT permanent

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INUM: POR 2505

ABS: Surface plutonium contamination patterns were developed following each of four experiments simulating different storage configurations of weapons in accidental non-nuclear detonations. The weapon arrays included single and multiple units in the open and multiple units in storage conditions with two and eight feet of earth over burden. From 8 to 65 square miles of land area on the Tonopah Test Range, Nevada, were surveyed after each experiment. A common surface, 1-foot by 1-foot square brushed concrete pads, was used for alpha radiac measurements. Over 7,500 such pads were monitored by project personnel. Basic measurements were obtained with the portable gas proportional alpha counter. Supplementary and correlative measurements were made with portable and mobile low energy gamma detectors.

ABS: Contamination contours resulting from alpha survey operations are expressed in CPM per probe area of 60 cm<sup>2</sup>. Conversion of field data to commonly used contours in units of microgram/m<sup>2</sup> was not considered advisable at the time of this report since considerable doubt exists concerning the use of a single conversion factor. With the calibration procedure used, the minimum detectable level of the portable low energy gamma detector (PAC-1S/PG-1) was found to be equivalent to approximately the 80,000 CPM/60 cm<sup>2</sup> contour by alpha survey. The more sensitive and sophisticated vehicle-mounted gamma scanner was able to reproduce a contour as low as the 1,000 CPM/60 cm<sup>2</sup> iso-intensity contour by alpha survey.

ABS: Operating in accessible terrain similar to that encountered on the Tonopah Test Range, the mobile equipment could define a plutonium contamination pattern in 30 minutes, whereas presently established alpha survey procedures required from four to six hours plus additional manpower and equipment. The low energy gamma detection technique for weapon grade plutonium may be applied to weapon accidents for preliminary and rapid situation evaluations when the technique is used by trained personnel.

ADNO: 477689

AUTH: JOHNSON W.S. SR.

CLSS: O

CORP: EBERLINE INSTRUMENT CORPORATION (SANTA FE-NEW MEXICO)

DATE: 6601

DESC: Nuclear weapon safety radiological

DESC: test instruments nuclear radiation fallout debris sampling  
collectors

DESC: EXPERIMENTAL TABULAR

DESC: test instruments nuclear radiation gamma

DESC: test instruments nuclear radiation proton alpha heavy particle

REPN: POR 2505 ; WT 2505

SHOT: DOUBLE TRACKS ; CLEAN SLATE 1 ; CLEAN SLATE 2 ; CLEAN SLATE 3

TSHO: SURFACE

SUJO: 4-341-000 ; 4-343-000 ; 4-345-000 ; 4-838-100

TITL: ALPHA SURVEY, OPERATION ROLLER COASTER, PROJECT OFFICERS REPORT,  
PROJECT 2.5 (U), 320 P (O)

TNFF: 8859

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POR 2505

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copy: 1 id: 89551-1001 library: DOCUMENT price: \$.00

cat1: cat2: home: STACKS current: STACKS

created: 12/27/1991 type: REPORT permanent

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INUM: POR 2506

ABS: Some physical and chemical properties of fallout resulting from the high-explosive detonations of nuclear weapons containing plutonium were determined. They included: (1) the total mass of fallout collected per unit area. (2) the amount of plutonium and uranium collected per unit area. (3) the mass distribution of plutonium and uranium by particle size. (4) the relationships among mass, plutonium content, and density of fallout samples. (5) the solubility of plutonium under conditions associated with the radiological recovery of contaminated facilities. The particulate fallout samples from the double tracks, Clean Slate I, and Clean Slate II events (DT, Cs I, and Cs II) were collected on 4-foot-square, petrolatum-coated, aluminum sheets placed upon the ground. They were distributed in a pattern downwind of the detonation point at distances ranging from 100 to 10,000 feet.

ABS: After removal from the collector panels by a xylene rinse, the particulate was separated by centrifugation. The following data was then obtained; (1) combined gamma and x-ray activity as measured in a well-type NaI crystal counter, (2) total sample weight, (3) mass

versus particle size, and (4) activity versus particle size. The plutonium content of each sample was computed from the counting data. (AM241, a concomitant of reactor-generated plutonium, yields a 60-keV gamma ray, and Pu239 yields a 17-keV x-ray.) the amount of material collected ranged from 0.2 to 6.6 G/M2 for DT, 0.2 to 28 G/M2 for CSI, and 0.3 to 2,560 G/M2 for Cs II. In some cases, an unknown amount of desert soil was blown onto the collectors, making precise measurements of the amount of fallout deposited on each collector impossible.

ABS: The amount of plutonium deposited ranged from 0.5 to 1,116 microgram/m2 for DT, 2.5 to 2,042 microgram/m2 for Cs I, and 3 to 4,670 microgram/m2 for Cs II. The ratio of uranium to plutonium in unsieved fallout samples was close to that of the original ratio of the weights of the metal used to fabricate the RC devices. The ratio for different particle sizes in sieved samples was not constant, indicating fractionation of plutonium and uranium with particle size. Of the plutonium in unsieved samples, 1 to 27 percent was associated with very fine particles having a density greater than 4.30; this fraction represented less than 5 percent of the sample weight. A fallout sample from the 5,600-foot arc from each of the first three events was wet-sieved. Fifty percent of the gamma activity was associated with particles less than 84 micron for DT, 195 micron for Cs I, and 39 micron for Cs II.

ABS: In fact, 98 percent of the gamma activity was associated with particles less than 50 micron in the Cs II sample. There was a general, but not always consistent, decrease in the particle size of samples collected at increasing downwind distances. Leaching and ion exchange studies showed that the plutonium in the fallout was not dissolved by water alone or water solutions of sodium hydroxide and orvus. About 10 percent was dissolved by 0.1 n hydrochloric acid, however. When fallout was mixed and allowed to stand with a water slurry of montmorillonite clay, about 6 percent of the activity became associated with the clay.

ADNO: 473534

AUTH: FULLER R.K. ; OCONNOR J.D. ; NUCKOLLS M.J.

CLSS: O

CORP: NAVY/NAVAL RADIOLOGICAL DEFENSE LABORATORY (SAN FRANCISCO-CALIFORNIA)

DATE: 6511

DESC: Nuclear weapon safety radiological

DESC: EXPERIMENTAL TABULAR

DESC: Nuclear Weapon Environment Fallout Particles

REPN: POR 2506 ; WT 2506

SHOT: DOUBLE TRACKS ; CLEAN SLATE 1 ; CLEAN SLATE 2

TSHO: SURFACE

SUJO: 2-222-000 ; 4-838-100

TITL: SPECIAL PARTICULATE CHARACTERISTICS, OPERATION ROLLER COASTER, PROJECT OFFICERS REPORT, PROJECT 2.6A (U), 226 P (O)

TNFF: 8859

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POR 2506

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created: 12/27/1991 type: REPORT permanent  
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INUM: POR 2507

ABS: Several thousand plutonium-bearing particles, representing over 200 physical samples, from operation Roller Coaster were examined. Cascade impactors, filters, and deposition collectors were included. Nuclear track autoradiography and optical microscopy measurements of particle size, shape, color and estimated activity were made for particles as small as 0.6 micron projected area diameter. Spherical particles as small as 0.05 micron diameter were measured by electron microscopy and the data compared with nuclear track counts for the same sample. Estimates of the density of particles were made from observation of CASELLA MK II impactor stages. Phosphor intensification autoradiography was applied to over 500 samples. No calibration to derive particle size was made due to the inhomogeneous particle composition.

ABS: Single particles larger than 14 microns were isolated for alpha counting, radiochemical analysis, x-ray diffraction, and electron microprobe analysis under other projects. Calculation of alpha self-absorption factor, gm u/ gm Pu, and particle density were obtained from the data. A wide range of particle compositions was encountered. Evidence that a few particles contained unreacted Pu was found. Most particles contained less than 20 percent plutonium.

ADNO: 486477  
AUTH: SHERWOOD R.D.  
CLSS: O  
CORP: ISOTOPES INCORPORATED (WESTWOOD-NEW JERSEY)  
DATE: 6605  
DESC: EXPERIMENTAL  
DESC: Nuclear weapon safety radiological  
REPN: POR 2507 ; WT 2507  
TSHO: SURFACE  
SUJO: 4-838-100  
TITL: SPECIAL PARTICULATE ANALYSIS, OPERATION ROLLER COASTER, PROJECT 2.6B, PROJECT OFFICERS REPORT (U), 492 P (O)  
TNFF: 8859

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POR 2507

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copy: 1 id: 89553-1001 library: DOCUMENT price: \$.00  
cat1: cat2: home: STACKS current: STACKS  
created: 12/27/1991 type: REPORT permanent  
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INUM: POR 2508

ABS: The procedures developed and used in obtaining data on individual particles resulting from the four events of operation Roller Coaster are presented with discussions of their accuracy and reliability. A very large amount of data on particle size, shape, color, and plutonium content was obtained. Less extensive data on uranium content was obtained by standard fluorometry. Special techniques for

obtaining the density of irregular particles, identifying submicron radioactive particles, and observing the elemental distribution quantitatively in individual particles were investigated in depth? recommendations on further development of these techniques are included.

ADNO: 470143  
AUTH: DUNN C.D. ; BERSIN R.L.  
CLSS: O  
CORP: TRACERLAB (RICHMOND-CALIFORNIA)  
DATE: 6509  
DESC: Nuclear weapon safety radiological  
DESC: EXPERIMENTAL TABULAR  
REPN: POR 2508 ; WT 2508  
SHOT: DOUBLE TRACKS ; CLEAN SLATE 1 ; CLEAN SLATE 2 ; CLEAN SLATE 3  
TSHO: SURFACE  
SUJO: 4-838-100  
TITL: SPECIAL PARTICULATE CHARACTERISTICS, OPERATION ROLLER COASTER,  
PROJECT OFFICERS REPORT, PROJECT 2.6C (U), 168 P (O)  
TNFF: 8859

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POR 2508

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cat1: cat2: home: STACKS current: STACKS  
created: 12/27/1991 type: REPORT permanent

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INUM: POR 2509

ABS: The objectives of the special particulate soil studies were investigations of possible effects that the mineralogy of soils in the test areas might have on the hazards resulting from a nonnuclear accident involving special nuclear materials. Of particular interest was any scavenging of plutonium that might result from interaction with soil materials. For the purposes of operation Roller Coaster, scavenging is defined as any interaction between special nuclear materials and soil materials that results in modification of the characteristics of radioactive particles, the aerosol derived therefrom, or the resulting hazard. Other special topics investigated in the soil particulate studies were relationships between uranium and plutonium and the possible use of indigenous vegetation as an emergency deposition collector.

ABS: nuclear-track-alpha (NTA) autoradiography preparations were made for all size fractions of soils smaller than 74 microns and microscopically studied to measure and characterize alpha-emitting particles. A limited amount of heavy liquid separation work was done on sized fractions. Selected single particles were studied by a special x-ray diffraction technique to identify the crystalline phases present. Statistical methods of correlation analysis were used to study the plutonium distributions and mineralogical distributions as functions of size, thus indicating those mineral species in the soils with which the plutonium had interacted. Results of the studies showed that the size distributions of plutonium deposited in downwind soils generally were not log-normal,

and up to a maximum of 90 percent of the plutonium was contained in a single square root of 2-size class interval.

ABS: This situation indicates that aerodynamic particle size sorting took place. In contrast, the plutonium distributions of Ground Zero soils from Clean Slate II and III were more disperse and were log-normal. The averaged mass median diameter of plutonium-bearing particles was larger for Clean Slate II than for Clean SLATE III, suggesting that soil scavenging of plutonium was more effective in Clean Slate II. There is no significant correlation of deposited plutonium with individual mineral species in the downwind areas of all four events, indicating that after deposition, plutonium-bearing particles do not become selectively attached to any one mineral because of surface chemistry characteristics. Therefore, soil mineralogy in local areas of deposition has no observable effect on any resuspension hazard.

ABS: Plutonium and uranium scavenging occurred to a significant extent by interaction with soil materials through the mechanism of melting to form a silicate glass, and such interactions have altered particle characteristics in the following manner: a) to reduce plutonium and uranium concentration, b) to reduce density, and C) to increase the mass median diameter. The scavenging mechanism could be enhanced by using storage structure overburden of granitic compositions with some added silicate fluxing mineral such as sodalite. The two-foot overburden thickness appears to be at least as effective as the eight-foot thickness. Uncertainties in soil uranium background determinations prevented calculation of u/pu for downwind soil samples from the Roller Coaster events.

ABS: The amounts of uranium in crater lip soil cores from Clean Slate II and III were high enough to minimize effects of uncertainties in backgrounds. In the areas involved in soil mining operations, u/pu ratios range from approximately two to four times the source ratios. However, the sized fractions of these soils have u/pu which approach source ratios for the medium-to fine-grained fractions, whereas the very fine and very coarse-grained fractions tend to have extremely high u/pu up to several orders of magnitude higher than source ratios. The very high u/pu ratios in coarse- and fine-grained GZ soil size fractions is explained by the fact that uranium is present in a more disperse particle population than plutonium. Because of the complexity of the u/pu relationships, no conclusions concerning the suitability of uranium as a simulant for plutonium can be drawn from these experiments.

ABS: A somewhat limited study indicated that indigenous vegetation could be a useful emergency deposition collector, but the precision of individual determinations would be poor.

ADNO: 484679

AUTH: PERRY J.K. ; BAILLIE W.N. ; TRIMBLE J.K. ; BLOODWORTH R.P.

CLSS: O

CORP: COLORADO SCHOOL OF MINES (GOLDEN-COLORADO)

DATE: 6605

DESC: Nuclear weapon safety radiological

DESC: EXPERIMENTAL DATA (PHOTOGRAPHS)

REPN: POR 2509 ; WT 2509

TSHO: SURFACE

SUJO: 4-838-100

TITL: SPECIAL PARTICULATE ANALYSIS (SOIL), OPERATION ROLLER COASTER,

PROJECT 2.6D, PROJECT OFFICERS REPORT (U), 454 P (O)

TNFF: 8859

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POR 2509

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cat1: cat2: home: STACKS current: STACKS

created: 12/27/1991 type: REPORT permanent

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INUM: POR 2510

ADNO: 462450

AUTH: LAURSEN H.G.

CLSS: U

CORP: SANDIA CORPORATION (ALBUQUERQUE-NEW MEXICO)

DATE: 6505

DESC: Nuclear weapon safety radiological

REPN: POR 2510 ; WT 2510

SHOT: DOUBLE TRACKS ; CLEAN SLATE 1 ; CLEAN SLATE 2 ; CLEAN SLATE 3

TSHO: SURFACE

SUJO: 4-838-100

TITL: BALLOON SUPPORT, OPERATION ROLLER COASTER, PROJECT OFFICERS REPORT,  
PROJECT 2.7 (U), 38 P (U)

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POR 2510

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cat1: cat2: home: STACKS current: STACKS

created: 12/27/1991 type: REPORT permanent

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INUM: POR 2513

ABS: A mobile sample processing facility was designed and successfully operated during operation Roller Coaster to provide (1) a Unified Method of processing and packaging samples, (2) onsite counting of selected samples, and (3) a complete record of all samples collected during the operation and their disposition. All of these objectives were achieved with no personnel contamination problems or cross-contamination of samples. Services provided by this facility (two trailers) included high and low-level counting areas, an instrument repair area, receiving and shipping facilities, and special processing facilities (two 9-foot hoods and 14 glove boxes). The once-through air supply and exhaust system provided 6,000 to 8,000 cfm of conditioned air and made the wearing of special protective equipment unnecessary.

ABS: Continuous-recording air monitors showed no significant increase in the airborne activity as a result of processing about 20,000 samples.

ADNO: 467825

AUTH: BAIETTI A.L. ; ZIRKES A.

CLSS: O

CORP: TRACERLAB (RICHMOND-CALIFORNIA)

DATE: 6507  
DESC: test instruments nuclear radiation fallout debris sampling  
collectors  
DESC: EXPERIMENTAL  
DESC: Nuclear weapon safety radiological  
REPN: POR 2513 ; WT 2513  
SHOT: CLEAN SLATE 1 ; CLEAN SLATE 2 ; CLEAN SLATE 3 ; DOUBLE TRACKS  
TSHO: SURFACE  
SUJO: 4-345-000 ; 4-838-100  
TITL: SAMPLE PROCESSING FACILITY, OPERATION ROLLER COASTER, PROJECT 5.1A,  
PROJECT OFFICERS REPORT (U), 182 P (O)  
TNFF: 8859

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POR 2513

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cat1: cat2: home: STACKS current: STACKS

created: 12/27/1991 type: REPORT permanent

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INUM: POR 2514

ABS: Evaluation of data obtained by catching particles from a radioactive  
cloud on sticky wires is presented. This technique was used  
successfully in operation Roller Coaster. Wire preparation and  
handling, activity measurement, data analysis, and preparation of  
activity contours for the clouds are discussed. Results of a  
laboratory program to determine the correlation between ionization  
chamber measurements of the and the mass of plutonium deposited on  
them by the cloud are presented? conversion factors obtained by both  
radiochemical analysis and wipe data compared well. The effect of  
altitude on air-ionization measurements is investigated both  
theoretically and experimentally.

ADNO: 482576L

AUTH: BAIETTI A.L. ; ZIRKES A.

CLSS: O

CORP: TRACERLAB (RICHMOND-CALIFORNIA)

DATE: 6605

DESC: Nuclear weapon safety radiological

DESC: EXPERIMENTAL

DESC: test instruments nuclear radiation fallout debris sampling  
collectors

DESC: test instruments nuclear radiation proton alpha heavy particle

REPN: POR 2514 ; WT 2514

SHOT: DOUBLE TRACKS ; CLEAN SLATE 1 ; CLEAN SLATE 2 ; CLEAN SLATE 3

TSHO: SURFACE

SUJO: 4-343-000 ; 4-345-000 ; 4-838-100

TITL: STICKY WIRE EVALUATION, OPERATION ROLLER COASTER, PROJECT OFFICERS  
REPORT, PROJECT 5.1B (U), 84 P (O)

TNFF: 8859

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POR 2514

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created: 12/27/1991 type: REPORT permanent  
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INUM: POR 2515

ABS: Operation Roller Coaster was a research program sponsored jointly by the U.S. Atomic Energy Commission, the U.S. Department of Defense, and the United Kingdom atomic energy authority to study the fate of fissile material scattered by non-nuclear explosions of plutonium-bearing devices in different environments. The field phase was conducted in Nevada in the spring of 1963. Hazleton-Nuclear Science Corporation carried out laboratory analyses for plutonium and uranium and conducted special studies related to general analysis. A total of 2,278 analyses was performed; of these, 1,809 were Pu analyses, 151 were u analyses, and 318 were special-study analyses. Both physical and biological samples were analyzed. The physical samples consisted of impactor stages, total air filters, and various types of fall-out deposition collectors.

ABS: The biological specimens consisted of soft tissues, bone, and excreta from dogs, sheep, and burros which had been exposed to the debris aerosol. The amounts of plutonium per sample ranged from less than 3.02 DPM to  $6 \times 10^8$  DPM. The amounts of uranium per sample ranged from 0.004 microgram to 14,400 micrograms. Because of these very wide ranges in u and Pu contents, special care was needed to avoid sample cross-contamination, and separate laboratories were used for biological and physical analyses. Except in large soil samples, plutonium was determined radiochemically using Pu236 as a yield tracer. The radio-chemically separated plutonium was measured by alpha spectrometry using large area semiconductor detectors. Uranium was measured fluorometrically. Two of the special studies involved the AM241 daughter of Pu241.

ABS: The PU239,240/AM241 activity ratio was determined radiochemically in selected deposition and air samples. There was no evidence of AM-PU fractionation. Plutonium was determined in selected soil samples by gamma-spectrometric measurement of the 60-keV gamma-ray of AM241, using a semi-empirical method for determining sample self-absorption and geometry corrections) the amounts of Pu239,240 found in the soils ranged from  $3 \times 10^4$  to  $6 \times 10^8$  DPM, and the sample weights ranged from 2 to 2,000 grams. Each chronic field position documented daily mean air concentrations.

ADNO: 484234

AUTH: MENKER H.E. ; ARMSTRONG J.C. ; BUCHANAN J.D. ; FORSLOW E.J. ; SORENSEN B.H.

CLSS: O

CORP: HAZLETON NUCLEAR SCIENCE CORPORATION (PALO ALTO-CALIFORNIA)

DATE: 6605

DESC: test instruments nuclear radiation proton alpha heavy particle

DESC: Nuclear weapon safety radiological

DESC: test instruments nuclear radiation gamma

DESC: EXPERIMENTAL

REPN: POR 2515 ; WT 2515

TSHO: SURFACE

SUJO: 4-341-000 ; 4-343-000 ; 4-838-100

TITL: RADIOCHEMICAL ANALYSIS OF BIOLOGICAL AND PHYSICAL SAMPLES, OPERATION  
ROLLER COASTER, PROJECT 5.2/5.3A, PROJECT OFFICERS REPORT (U), 218 P  
(O)

TNFF: 8859

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POR 2515

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copy: 1 id: 89561-1001 library: DOCUMENT price: \$.00

cat1: cat2: home: STACKS current: STACKS

created: 12/27/1991 type: REPORT permanent

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INUM: POR 2516

ABS: Data on the plutonium and uranium content of biological and physical  
samples, collected and isolated from non-nuclear detonations of  
plutonium bearing weapons under various storage situations, are  
presented. Over 4,000 radiobiological, radiochemical, and  
fluorimetric analysis are tabulated.

ADNO: 364669L

AUTH: MAJOR W.J. ; WESSMAN R.A.

CLSS: CRD-1

CORP: TRACERLAB (RICHMOND-CALIFORNIA)

DATE: 6508

DESC: Nuclear Test Simulation Field Programs experiment design fallout  
radioactivity

DESC: EXPERIMENTAL

DESC: Nuclear weapon safety radiological

REPN: POR 2516 ; WT 2516

TSHO: SURFACE

SUJO: 4-821-000 ; 4-838-100

TEMP: B8514

TITL: RADIOBIOLOGICAL, RADIOCHEMICAL, AND PHYSIOCHEMICAL ANALYSES,  
OPERATION ROLLER COASTER, PROJECT OFFICERS REPORT, PROJECT 5.2/5.3B  
(U), 272 P (CRD)

TNFF: 8859

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POR 2516

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cat1: cat2: home: STACKS current: STACKS

created: 12/27/1991 type: REPORT permanent

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INUM: POR 2517

ADNO: 470142

AUTH: GEIGER E.L.

CLSS: U

CORP: EBERLINE INSTRUMENT CORP. (SANTA FE, NM)

DATE: 6509

DESC: Nuclear Weapon Effects on animals ionizing radiation chronic  
internal L1 PLUTONIUM URANIUM DOGS SHEEP BURROS

DESC: SIMULATION ; EXPERIMENTAL

REPN: POR 2517 ; WT 2517  
SHOT: ROLLER COASTER  
SUJO: 3-312-220  
TITL: RADIOCHEMISTRY; OPERATION ROLLER COASTER; PROJECT OFFICERS  
REPORT-PROJECT 5.2/5.3C (U), 178 P., (U)

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POR 2517

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copy: 1 id: 89563-1001 library: DOCUMENT price: \$.00  
cat1: cat2: home: STACKS current: STACKS  
created: 12/27/1991 type: REPORT permanent

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INUM: POR 2518

ABS: Plutonium, uranium, americium, and gamma spectrometric analyses were performed on over two thousand operation Roller Coaster physical and biological samples. Separate laboratory facilities were maintained for the biological and physical samples to prevent crosscontamination of the activities of the two sample types. In general, samples of low activity were analyzed first, and samples of approximately equal activities were analyzed in groups to further minimize cross-contamination. A quality control program involving the analyses of standards, splits, and blanks demonstrated the precision of the plutonium analysis to be 4.4 percent at the 95-percent confidence level with no trend in the precision with time and no significant contribution to the determined sample activities from laboratory contamination.

ADNO: 469127

AUTH: KREY P.W. ; FRIED R.E.

CLSS: O

CORP: ISOTOPES INCORPORATED (WESTWOOD-NEW JERSEY)

DATE: 6508

DESC: test instruments nuclear radiation gamma

DESC: EXPERIMENTAL

DESC: Nuclear weapon safety radiological

DESC: test instruments nuclear radiation proton alpha heavy particle

REPN: POR 2518 ; WT 2518

SHOT: DOUBLE TRACKS ; CLEAN SLATE 1 ; CLEAN SLATE 2 ; CLEAN SLATE 3

TSHO: SURFACE

SUJO: 4-341-000 ; 4-343-000 ; 4-838-100

TITL: LABORATORY ANALYSES OF ROLLER COASTER SAMPLES, OPERATION ROLLER  
COASTER, PROJECT OFFICERS REPORT, PROJECT 5.2/5.3D (U), 143 P (O)

TNFF: 8859

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POR 2518

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copy: 1 id: 89564-1001 library: DOCUMENT price: \$.00  
cat1: cat2: home: STACKS current: STACKS  
created: 12/27/1991 type: REPORT permanent

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INUM: POR 2519

ABS: Sandia Corporation provided the technical photographic coverage and the reduction of the optical data for operation Roller Coaster. Since all events took place at night, artificial lighting was provided for cloud illumination. Optical data were reduced to give cross-sectional configurations versus time at various heights, height of cloud top versus time, and the positions of sampling devices in a balloon-suspended array in the cloud path.

ADNO: 467824  
AUTH: BEASLEY R.R.  
CLSS: O  
CORP: SANDIA CORPORATION (ALBUQUERQUE-NEW MEXICO)  
DATE: 6508  
DESC: EXPERIMENTAL  
DESC: Nuclear weapon safety radiological  
REPN: POR 2519 ; WT 2519  
SHOT: DOUBLE TRACKS ; CLEAN SLATE 1 ; CLEAN SLATE 2 ; CLEAN SLATE 3  
TSHO: SURFACE  
SUJO: 4-838-100  
TITL: TECHNICAL PHOTOGRAPHY, OPERATION ROLLER COASTER, PROJECT OFFICERS  
REPORT, PROJECT 9.5 (U), 100 P (O)  
TNFF: 8859

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POR 2519

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cat1: cat2: home: STACKS current: STACKS  
created: 12/27/1991 type: REPORT permanent

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INUM: POR 2600  
ADNO: 376189L  
AUTH: MARTIN D.G.  
CLSS: SRD-1  
CONN: AF 29 (601) 6315  
CORP: AIR FORCE/WEAPONS LABORATORY (KIRTLAND AIR FORCE BASE-NEW MEXICO) ;  
BOEING AIRCRAFT COMPANY (SEATTLE-WASHINGTON)  
DATE: 6610  
DESC: EXPERIMENTAL  
DESC: Nuclear Weapon Environment Initial Gamma dose rate pulse width  
DESC: Nuclear Weapon Effects electronic pieceparts resistors capacitors  
vacuum tubes dielectrics relays switches  
DESC: Nuclear Weapon Environment Prompt Neutron source strength total  
fluence  
DESC: Nuclear Weapon Effects electrical mechanical cables wires  
DESC: Nuclear Test Simulation Field Programs experiment design electrical  
electronic cable noise instrumentation links  
DESC: Nuclear Weapon Environment Initial Gamma source strength total  
intensity  
DESC: Nuclear Weapon Effects electronic pieceparts transistors diodes  
silicon-controlled rectifiers  
REPN: POR 2600 ; WT 2600  
SHOT: BACKSWING  
TSHO: UG-CONTAINED ; LOW-ALT ; HI-ALT

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DASA 1892 1

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copy: 1 id: 74845-1001 library: DOCUMENT price: \$.00

cat1: cat2: home: STACKS current: STACKS

created: 12/27/1991 type: REPORT permanent

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INUM: DASA 1908

ADNO: 817716L

AUTH: POST R.G.

CLSS: U

CONN: DA 49 146 XZ 251

CORP: UNIVERSITY OF ARIZONA (TUCSON-ARIZONA)

DATE: 6600

DESC: SURVEY

DESC: test instruments nuclear radiation dosimeters radiacs

REPN: DASA 1908

SUJO: 4-346-000

TITL: ENGINEERING DESIGN AND EVALUATION OF SYSTEM TECHNIQUES FOR  
MONITORING OF RADIATION FIELDS IN UNATTENDED LOCATIONS, FINAL REPORT  
(U), 132 P (U)

TREE: 655

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DASA 1908

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copy: 1 id: 74866-1001 library: DOCUMENT price: \$.00

cat1: cat2: home: STACKS current: STACKS

created: 12/27/1991 type: REPORT permanent

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INUM: DNA 1251 3

ADNO: 381963L

AUTH: KAWAHARA F.K. ; OCONNOR J.D. ; LEE H. ; CONNORS M.A.

CLSS: SRD

CORP: NAVY/NAVAL RADIOLOGICAL DEFENSE LABORATORY (SAN  
FRANCISCO-CALIFORNIA)

DATE: 6611

DESC: SUMMARY

DESC: Nuclear Weapon Environment Fallout Formation mechanics

DESC: Nuclear Weapon Environment Fallout Particles

REPN: DASA 1251 V.3 ; USNRDL 497

SHOT: WIGWAM ; ABLE (R) ; APPLE-1 ; APPLE-2 ; BAKER(B-J) ; BAKER (RANGER)  
; BAKER 2 (R) ; BEE ; BRAVO ; CHARLIE(B-J) ; DIABLO ; DOG(B-J) ; DOG  
(GH) ; DOPPLER ; EASY(B-J) ; EASY (GREENHOUSE) ; EASY (RANGER) ; ESS  
; FIG ; FIZEAU ; FLATHEAD ; FOX (RANGER) ; FRANKLIN PRIME ; GEORGE  
(GREENHOUSE) ; HOOD ; ENCORE ; ITEM ; JOHN ; KING ; KOA ; KOON ;  
LACROSSE ; LASSEN ; MET ; MIKE ; MOTH ; NANCY ; NAVAJO ; NECTAR ;  
OWENS ; PRISCILLA ; RAY ; ROMEO ; SHASTA ; SIMON ; SMOKY ; STOKES ;  
SUGAR ; TESLA ; TEWA ; CHARLIE(T-S) ; DOG(T-S) ; EASY(T-S) ;  
FOX(T-S) ; GEORGE(T-S) ; HOW ; TURK ; UMBRELLA ; UNCLE ; UNION ;  
WIGWAM ; WILSON ; YANKEE ; YOKE ; ZEBRA ; ZUNI

TSHO: UW ; WATER-SURFACE ; SURFACE ; UG-VENTED ; LOW-ALT  
SUJO: 2-221-000 ; 2-222-000  
TEMP: 55731  
TITL: LOCAL FALLOUT FROM NUCLEAR TEST DETONATIONS; VOLUME 3, ANNOTATED  
COMPENDIUM OF DATA ON PHYSICAL AND CHEMICAL PROPERTIES OF FALLOUT  
(U), 770 P (SRD)

TNFF: 4860

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DNA 1251 3

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copy: 1 id: 75742-1001 library: DOCUMENT price: \$.00

cat1: cat2: home: STACKS current: STACKS

created: 12/27/1991 type: REPORT permanent

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INUM: DNA 1464 3

ADNO: 371375L

AUTH: RUGGE H. ; TEATUM E.

CLSS: SRD

CORP: PHYSICS INTERNATIONAL (SAN LEANDRO-CALIFORNIA)

DATE: 6601

DESC: Nuclear Weapon Effects electronic pieceparts transistors diodes  
silicon-controlled rectifiers

DESC: Nuclear Weapon Environment X-ray Output rate

DESC: SOURCEBOOK EXPERIMENTAL THEORY

DESC: Simulation Facilities Techniques TREE

DESC: Simulation Facilities Techniques nuclear radiation reactors isotopic  
sources

DESC: Nuclear Weapon Effects electronic subsystems analysis circuit  
network

DESC: Nuclear Weapon Effects electronic pieceparts integrated circuits

DESC: Nuclear Weapon Effects reentry systems RV

DESC: Nuclear Weapon Effects ordnance bombs mines warheads

DESC: Nuclear Weapon Effects materials not systems associated

DESC: Nuclear Weapon Environment Prompt Neutron energy spectrum

DESC: Nuclear Weapon Environment X-ray Output source strength total  
intensity

DESC: Nuclear Weapon Environment Initial Gamma dose rate pulse width

DESC: Nuclear Weapon Effects electronic pieceparts resistors capacitors  
vacuum tubes dielectrics relays switches

DESC: Nuclear RDT&E Research Program Descriptions electronic vulnerability

DESC: Nuclear Weapon Environment Initial Gamma energy spectrum

DESC: Nuclear Weapon Effects ordnance electroexplosive devices fuses

DESC: Nuclear Weapon Environment Fallout gamma intensities spectra

REPN: DASA 1464 3 (1966)

SOCE: DEV-5 ; DEV-1 ; DEV-1 ; DEV-12

SUJO: 1-120-000 ; 1-610-000 ; 1-640-000 ; 1-720-000 ; 1-740-000 ;

2-223-200 ; 3-113-000 ; 3-161-000 ; 3-162-000 ; 3-219-000 ;

3-221-000 ; 3-222-000 ; 3-229-000 ; 3-240-000 ; 4-170-000 ;

4-241-000 ; 4-272-000

TEMP: 51259 VOL 3

TITL: NUCLEAR WEAPON VULNERABILITY SOURCE BOOK, VOLUME III (U), 164 P  
(SRD)